

AMENDMENTS TO THE CLAIMS:

Please amend the claims as follows. The following listing of claims will replace all prior versions, and listings, of claims in the application.

Please amend claims 11-14, and 17 as follows.

1.-10. (Cancelled)

11. (Currently Amended) A method of channel impulse response estimation in a cellular communication system in which symbols are transmitted between a mobile station and a base station, the method comprising:

receiving via a communication channel an incoming signal that incorporates symbols spread by a spreading code in a CDMA system, the incoming signal including data symbols and pilot symbols, a unique spreading code having been used respectively for pilot symbols and data symbols;

providing a first estimate for the channel impulse response of that communication channel and utilising that first estimate to process the incoming signal to generate an estimated data symbol;

using said estimated data symbol to generate a soft output feedback decision; and
using the soft output feedback decision to make a further estimate of the channel impulse response.

12. (Currently Amended) A method according to claim 11, wherein the channel impulse response is estimated by performing a correlation process between a conjugate version of the spreading code and the incoming signal, and multiplying the results of that

process by the soft output feedback decision value as a weighting value for the channel impulse response.

13. (Currently Amended) A method according to claim 11, in which a long spreading code has additionally been used to spread the data and pilot symbols prior to transmission.

14. (Currently Amended) A method of channel impulse response estimation in a cellular communication system in which symbols are transmitted between a mobile station and a base station, the method comprising:

receiving via a communication channel an incoming signal which incorporates symbols spread by a spreading code;

providing a first estimate for the channel impulse response of that communication channel and utilising that first estimate to process the incoming signal to generate an estimated data symbol;

making a further estimate of the channel impulse response by performing a correlation process between a conjugate version of the spreading code and the incoming signal, and multiplying the results of that process by a feedback decision based on said estimated data symbol as a weighting value for the channel impulse response.

15. (Previously Presented) A method according to claim 14, wherein the feedback decision is a soft output.

16. (Previously Presented) A method according to claim 14, wherein the feedback decision is a hard output.

17. (Currently Amended) Circuitry for estimating a channel impulse response in a cellular communication system in which symbols are transmitted between a mobile station and a base station, the circuitry comprising:

a receiver for receiving via a communication channel an ~~in-coming~~ incoming signal which incorporates symbols spread by a spreading code;

a channel impulse response generator for providing a first estimate for the channel impulse response of that communication channel;

a data symbol generator for generating an estimated data symbol using the first estimate of the channel impulse response;

circuitry for providing a further estimate of the channel impulse response by performing a correlation process between a conjugate version of the spreading code and the incoming signal, and multiplying the results of that process by a feedback decision based on said estimated data symbol as a weighting value for the further estimate of the channel impulse response.

18. (Previously Presented) Circuitry for estimating a channel in a cellular communication system in which symbols are transmitted between a mobile station and a base station, the circuitry comprising:

a receiver for receiving an incoming signal via a communication channel, the incoming signal incorporating symbols spread by a spreading code in a CDMA system, the incoming signal including data symbols and pilot symbols, a unique spreading code having been used respectively for pilot symbols and data symbols;

a channel impulse response generator for providing a first estimate for the channel impulse response of that communication channel;

a data symbols generator for generating an estimated data symbol using that first estimate;

a soft output feedback decision generator for using said estimated data symbol to generate a soft output feedback decision;

wherein the soft output feedback decision is used to make a further estimate of the channel impulse response.